

Five new species of the spider genus *Dipoena* Thorell, 1869 from Hainan Island, China (Araneae: Theridiidae)

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Abstract — Five new species of the spider genus *Dipoena* Thorell, 1869 collected from Hainan Island, China, are recognized, described and illustrated: *Dipoena bifida* sp. nov. (male & female), *D. longiducta* sp. nov. (male & female), *D. membranula* sp. nov. (male & female), *D. shortiducta* sp. nov. (female) and *D. arborea* sp. nov. (female).

Key words — spider, *Dipoena*, taxonomy, new species, Hainan Island

Introduction

Species of the spider family Theridiidae are small to medium in size. In terms of the numbers of described species, it is the fifth largest among Araneae, with 112 genera and 2308 species worldwide (Platnick 2010). To date, 48 genera and 278 species of Theridiidae have been recorded in China (Zhu 1998; Song et al. 1999; Li & Wang 2010; Platnick 2010).

The genus *Dipoena* was erected by Thorell in 1869. It is treated as a senior synonymy of *Umfila* Keyserling, 1886, *Stictoxena* Simon, 1895 and *Paoningia* Schenkel, 1936 (Levi & Levi 1962). Wunderlich (1988) restricted this genus to the type species, *D. melanogaster* (C. L. Koch, 1837), and assigned other species to the resurrected genus *Lasaeola* Simon, 1881 or to *Dipoenata* Wunderlich, 1988. Yoshida (2002) resurrected the genus *Trigonobothrys* Simon, 1889, which was considered a junior synonym of the genus *Phycosoma* O. P.-Cambridge, 1879 by Fitzgerald & Sirvid (2004), and erected a new genus *Yaginumena* Yoshida, 2002 and assigned some species formerly belonging to *Dipoena* (Yoshida 2002) to *Yaginumena*, *Lasaeola* and *Trigonobothrys*. Currently 157 *Dipoena* species are described from worldwide, only 17 species are known from China (Platnick 2010).

During the examination of spider specimens collected from Hainan Island, China, we found some species of the genus *Dipoena* s. str., among them, five species are new to science, and here we describe them.

Material and methods

Terminology is standard for Araneae. All specimens were kept in 75% ethanol and examined, drawn and measured under a Tech XTL-II stereomicroscope equipped with

an Abbe drawing device. Prosoma length was measured from the anterior margin to the posterior margin of the carapace medially. Eye sizes were measured as the maximum diameter in dorsal or frontal view. The measurements of legs are shown as total length (femur, patella, tibia, metatarsus, tarsus). The epigynum was cleared in a warm solution of potassium hydroxide (KOH), transferred to water and temporarily mounted for drawing. All measurements are in millimeters. All specimens in this study are deposited in the Museum of Hebei University (MHB), Baoding, China.

The following abbreviations are used: AER, anterior eye row; ALE, anterior lateral eye; AME, anterior median eye; ALE-ALE, distance between ALE; AME-ALE, distance between AME and ALE; AME-AME, distance between AME; C, conductor; CD, copulatory ducts; E, embolus; FD, fertilization ducts; MA, median apophysis; MOA, median ocular area; PER, posterior eye row; PLE, posterior lateral eye; PME, posterior median eye; PLE-PLE, distance between PLE; PME-PLE, distance between PME and PLE; PME-PME, distance between PME; S, spermathecae; ST, subtegulum; T, tegulum.

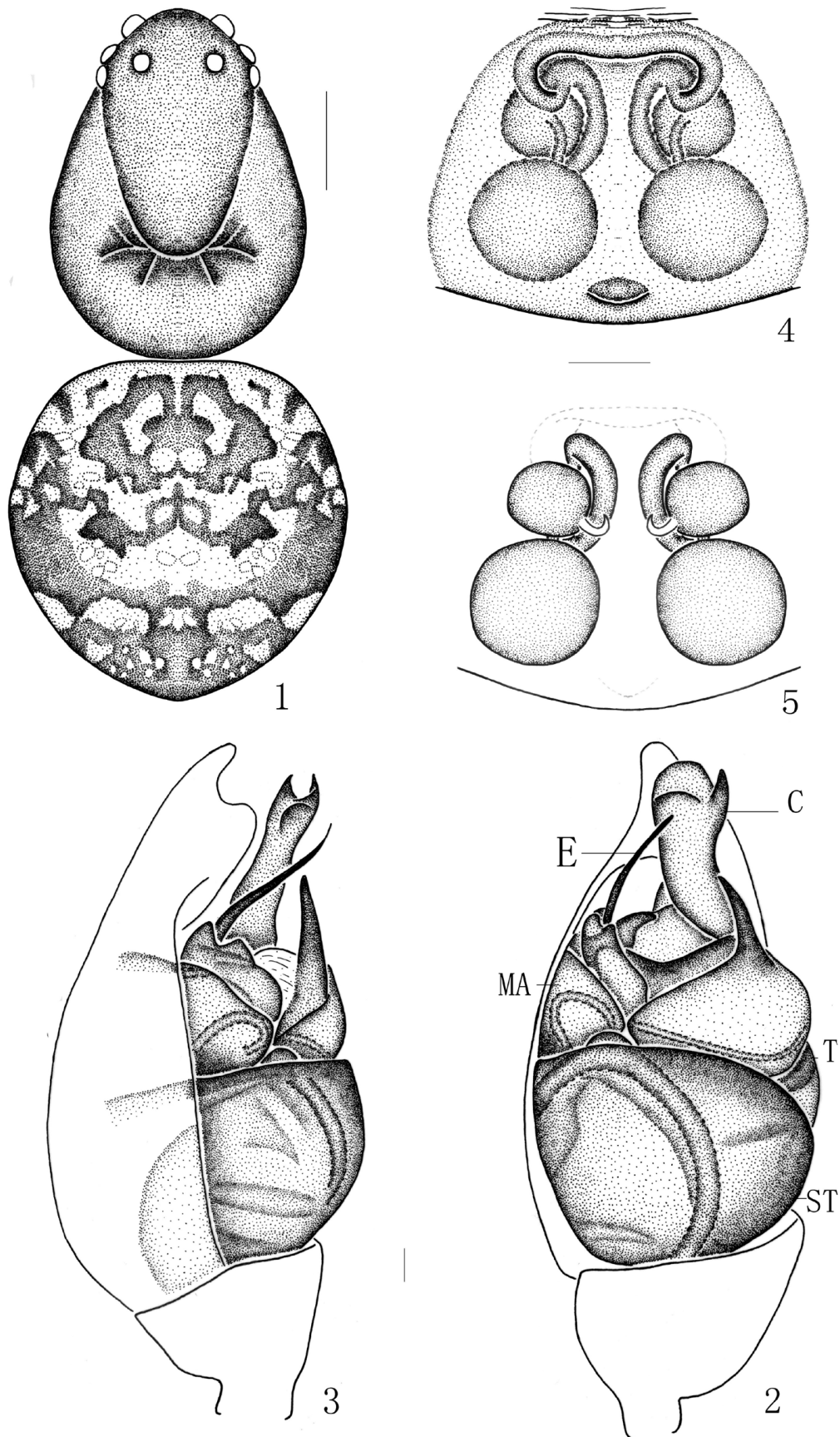
Taxonomy

Dipoena bifida sp. nov.

(Figs. 1–5)

Type material: Holotype male, Hainan Island, Bawangling Mountain (19°09'N, 109°10'E), 19 May 2009, C. Zhang leg. Paratypes: 2 females and 1 male, same data as holotype; 2 males and 1 female, Jianfengling Mountain (19°07'N, 109°13'E), 30 May 2009, C. Zhang leg.; 4 males and 2 females, Limu Mountain (19°10'N, 109°39'E), 18 August 2007, F. Zhang leg.

Diagnosis: This new species resembles *D. nipponica*



Figs. 1–5. *Dipoena bifida* sp. nov. 1–3, male holotype. 1, body, dorsal view; 2, male left palp, ventral view; 3, same, prolateral view. 4–5, female paratype. 4, epigyne, ventral view; 5, vulva, dorsal view. Scale bars: 1, 0.5 mm; 2–5, 0.1 mm.

Yoshida, 2002 in the general shapes of the palpal organ and epigynum, but differs from the latter by: (1) the tegular apophysis finger-shaped (Figs. 2–3), while subuliform in the latter; (2) the embolic base hidden partly (Figs. 2–3), while distinctly visible in the latter; (3) the conductor straight (Figs. 2–3), while bent in the latter; (4) the shape of median apophysis different from the latter (Figs. 2–3); (5) the epigynum with a kidney-shaped atrium anteriorly (Fig. 4), while the epigynum with a projection in the latter; and (6) the connecting duct different from the latter (Fig. 5).

Etymology: The specific name refers to bifurcate tip of the conductor.

Description: Male. Body length 2.75–2.96. Holotype: body length 2.75; prosoma length 1.33, width 1.12, height 1.02; opisthosoma length 1.42, width 1.22.

Color. Carapace (Fig. 1) dark brown. Thoracic groove black. Eyes with black ring. Clypeus, chelicerae, endites, sternum and labium dark brown, fangs of chelicerae brown, endites gray distally. Leg patellae brown and with dark brown lateral stripes; femora, tibiae and metatarsi of legs I and II brown and with dark brown stripes; the distal part of femora III and IV and tibiae IV dark brown; metatarsi III brown. Dorsum of abdomen grayish yellow and covered with big continuous black patches and many small white patches; venter dark brown and with irregular brown patches. Spinnerets dark brown.

Prosoma (Fig. 1). Carapace oval with wide and deep thoracic groove, longer than wide; head protruding forward and beyond clypeus, with several long gray setae anteriorly. Both the eye rows recurved in dorsal view. Eye measurements: AME 0.15, ALE 0.05, PME 0.08, PLE 0.05; AME-AME 0.08, AME-ALE 0.03, ALE-ALE 0.45, PME-PME 0.10, PME-PLP 0.10, PLE-PLP 0.53, ALE and PLE contiguous. MOA length 0.32, front width 0.38, back width 0.23. Clypeus height 0.82 and covered with few gray setae. Fangs of chelicerae thin and long. Anterior margin of endites covered with gray scopula. Labium length 0.18, width 0.18. Sternum length 0.71, width 0.61, and covered with sparse gray setae.

Legs. Thin, and covered with sparse thin setae and spines. Measurements of legs: leg I 3.37 (1.02, 0.41, 0.71, 0.82, 0.41), II 2.66 (0.82, 0.31, 0.51, 0.61, 0.41), III 2.25 (0.61, 0.31, 0.41, 0.51, 0.41), IV 3.47 (1.02, 0.41, 0.81, 0.82, 0.41). Leg formula: 4123.

Opisthosoma (Fig. 1). The anterior part wider than the posterior part, longer than wide slightly, the anterior margin slightly procurved and covered with sparse gray setae.

Male palp (Figs. 2–3). The apical part of cymbium thin; tegular apophysis thin, finger-shaped, and with wide base; embolus thin, whip-shaped, bent slightly; conductor thick, tapering to the top, apical part with an acute apophysis in ventral view.

Female. Body length 2.82–3.06. A paratype (from Bawangling Town): body length 2.85; prosoma length 1.12, width 1.02, height 0.61; opisthosoma length 1.73, width 1.53.

Color. Cervical grooves and radial furrows black. Chelicerae grayish yellow, anterior face with gray patches, fangs yellowish brown. Legs yellowish brown, patellae, the distal part of femora and tibiae, and the basal part of metatarsi with black patches. The anterior margin of opisthosoma dorsally covered with sparse setae, and thin annular dark brown patches surrounding each seta; venter grayish yellow and with a few white patches. Spinnerets brown. Other characters as in holotype.

Prosoma. Carapace with high head region, and without distinct thoracic groove. AER recurved and PER procurved in dorsal view. Eye measurements: AME 0.13, ALE 0.08, PME 0.10, PLE 0.08; AME-AME 0.10, AME-ALE 0.03, ALE-ALE 0.48, PME-PME 0.10, PME-PLP 0.13, PLE-PLP 0.50, ALE and PLE contiguous. MOA length 0.25, front width 0.35, back width 0.25. Clypeus height 0.41. Labium length long, width 0.20. Sternum length 0.63, width 0.53.

Legs. Measurements of legs: leg I 3.16 (1.02, 0.41, 0.71, 0.61, 0.41), II 2.56 (0.92, 0.31, 0.51, 0.41, 0.41), III 2.25 (0.61, 0.31, 0.51, 0.41, 0.41), IV 3.26 (1.12, 0.41, 0.71, 0.61, 0.41). Leg formula: 4123.

Female genitalia (Figs. 4–5). The epigynum lightly sclerotized, anterior atrium kidney-shaped, copulatory openings lying at the lateral margin of atrium; posterior part with a small oval concave; and connecting ducts long and bent slightly, connected with the anterior spermathecae ventrally.

Distribution: China (Hainan).

Dipoena longiducta sp. nov.

(Figs. 6–10)

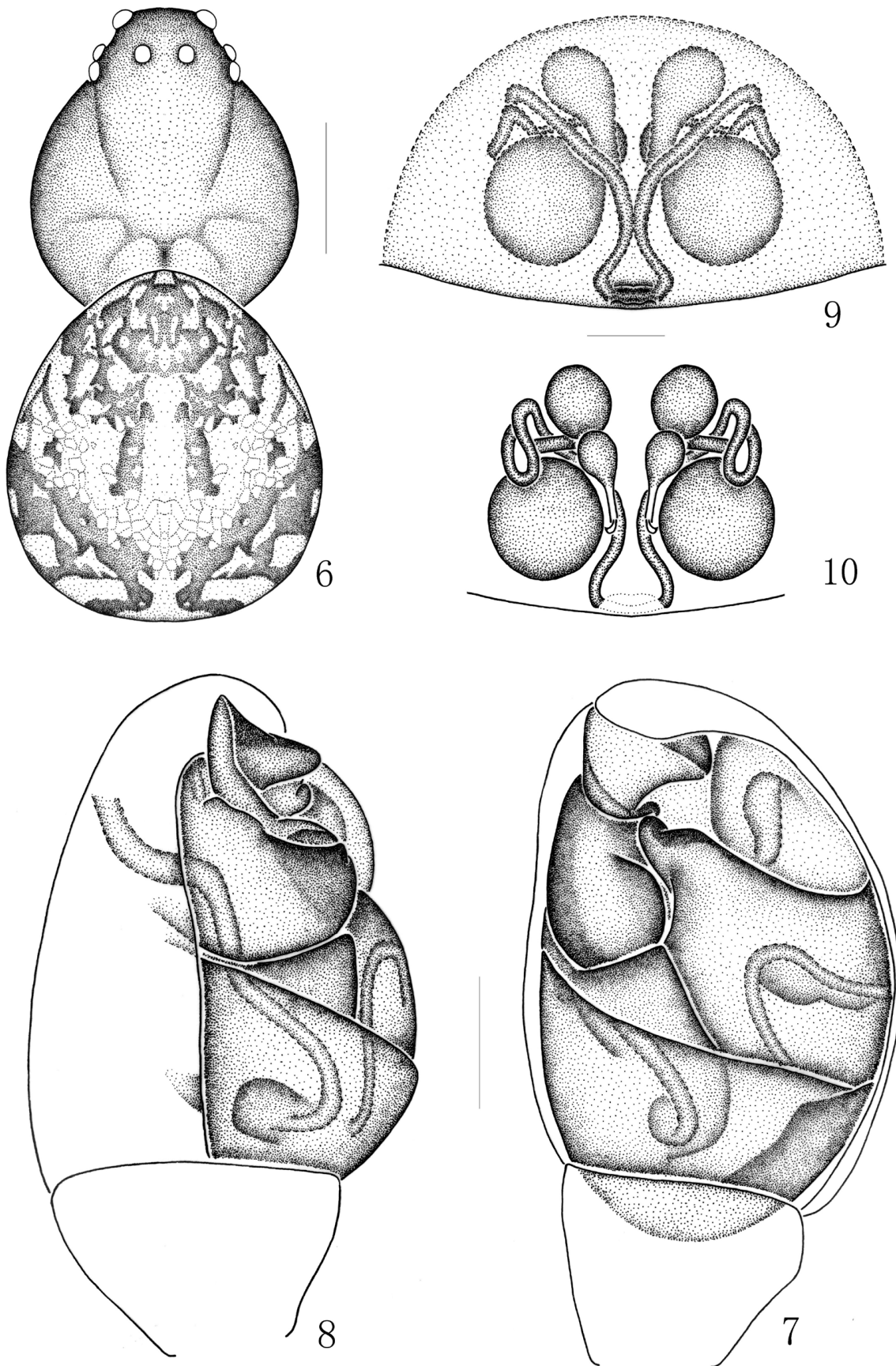
Type material: Holotype male, Hainan Island, Limu Mountain (19°10'N, 109°39'E), 20 August 2007, F. Zhang leg. Paratypes: 1 female, same data as holotype; 1 male and 1 female, Jianfengling Mountain (19°07'N, 109°13'E), 1 June 2009, C. Zhang leg.; 2 females, 12 November 2008, G. X. Han leg.; 1 female, Diaoluo Mountain (18°45'N, 109°45'E), 5 June 2009, C. Zhang leg.; 1 female, Bawangling Town (19°09'N, 109°10'E), 25 May 2009, C. Zhang leg.; 3 females, Fanjia Town (19°19'N, 109°41'E), 15 May 2009, C. Zhang leg.

Diagnosis: The male of new species resembles *D. washougalia* Levi, 1953 in the general shapes of the palpal organ, but differs from the latter by: (1) the tegular apophysis thumb-shaped (Figs. 7–8), while hillock-shaped in the latter; (2) the shape of conductor different from the latter (Figs. 7–8). The female differs from other *Dipoena* species by: the connecting ducts very long and curve; seminal receptacle with a global head (Figs. 9–10).

Etymology: The specific name refers to long connecting ducts of the epigynum.

Description: Male. Body length 2.24–2.35. Holotype: body length 2.35; prosoma length 1.12, width 0.92, height 0.61; opisthosoma length 1.33, width 1.12.

Color. Carapace (Fig. 6) dark brown, brown centrally. Cervical grooves, radial furrows and median furrow black.



Figs. 6–10. *Diploena longiducta* sp. nov. 6–8, male holotype. 6, body, dorsal view; 7, male left palp, ventral view; 8, same, prolateral view. 9–10, female paratype. 9, epigyne, ventral view; 10, vulva, dorsal view. Scale bars: 6, 0.5 mm; 7–10, 0.1 mm.

Eyes with black ring. Chelicerae brown. Clypeus, endites, sternum and labium dark brown. Legs yellow brown, patellae, femora distally, tibiae laterally and metatarsi basally with black patches. Dorsum of opisthosoma grayish yellow and covered with big continuous black patches and some small white patches; venter dark brown, lateral side with longitudinal white stripes. Spinnerets brown.

Prosoma (Fig. 6). Carapace longer than wide, highest centrally, head protruding forward and beyond clypeus, with several long gray setae anteriorly. Median furrow longitudinal. Both the eye rows recurved in dorsal view. Eye measurements: AME 0.12, ALE 0.07, PME 0.09, PLE 0.07; AME-AME 0.12, AME-ALE 0.03, ALE-ALE 0.52, PME-PME 0.12, PME-PLP 0.09, PLE-PLP 0.55, ALE and PLE contiguous. MOA length 0.28, front width 0.36, back width 0.28. Clypeus height 0.41. Fangs of chelicerae thin and long. Labium length 0.15, width 0.18. Sternum length 0.64, width 0.57 and covered with sparse gray setae.

Legs. Thin, with sparse thin setae and spines. Measurements of legs: leg I 2.40 (0.71, 0.41, 0.55, 0.42, 0.31), II 2.02 (0.58, 0.31, 0.41, 0.41, 0.31), III 1.93 (0.58, 0.31, 0.41, 0.32, 0.31), IV 2.71 (0.90, 0.31, 0.48, 0.61, 0.41). Leg formula: 4123.

Opisthosoma (Fig. 6). The posterior part wider than the anterior part, longer than wide slightly, and covered with sparse gray setae.

Male palp (Figs. 7–8). The apophysis of apical tegulum thumb-shaped and bent; conductor thick and lying on the top; embolus covered by conductor.

Female. Body length 2.35–2.45. A paratype (from Limu Mountain): body length 2.35; prosoma length 0.92, width 0.82, height 0.71; opisthosoma length 1.53, width 1.33.

Color. Median furrow invisible. Chelicerae dark brown. Legs yellowish, femora distally, patellae basally, tibiae laterally with black longitudinal patches. Other characters as in holotype.

Prosoma. The margin of carapace and ocular area with sparse gray setae. AER recurved and PER procurved in dorsal view. Eye measurements: AME 0.13, ALE 0.08, PME 0.10, PLE 0.08; AME-AME 0.13, AME-ALE 0.05, ALE-ALE 0.55, PME-PME 0.13, PME-PLP 0.10, PLE-PLP 0.58, ALE and PLE contiguous. MOA length 0.28, front width 0.38, back width 0.30. Clypeus height 0.41. Labium length 0.15, width 0.20. Sternum length 0.65, width 0.58.

Legs. Measurements of legs: leg I 2.35 (0.71, 0.41, 0.51, 0.41, 0.31), II 2.05 (0.61, 0.31, 0.41, 0.41, 0.31), III 1.95 (0.61, 0.31, 0.41, 0.31, 0.31), IV 2.76 (0.92, 0.31, 0.51, 0.61, 0.41). Leg formula: 4123.

Female genitalia (Figs. 9–10). The epigynum lightly sclerotized, with a small posterior atrium; connecting ducts long and curve, connected with the anterior spermathecae; spermathecae with a global head.

Distribution: China (Hainan).

Dipoena membranula sp. nov.

(Figs. 11–15)

Type material: Holotype male, Hainan Island, Jianfengling Mountain (19°07'N, 109°13'E), 30 May 2009, C. Zhang leg. Paratypes: 1 male, Jianfengling Mountain, 12 November 2008, G. X. Han leg.; 2 males, 1 June 2009, C. Zhang leg.; 1 female, Bawangling Mountain (19°09'N, 109°10'E), 8 May 2009, C. Zhang leg.; 1 male, Diaoluo Mountain (18°45'N, 109°45'E), 7 June 2009, C. Zhang leg.; 1 male, Datian Town (19°03'N, 108°50'E), Dongfang City, 6 August 2007, F. Zhang leg.

Diagnosis: This new species resembles *Dipoena redunca* Zhu, 1998 in the general shapes of the palpal organ and epigynum, but differs from the latter by: (1) the apical tegular apophysis thin (Figs. 12–13), while wider in the latter; (2) the conductor thin, and the shape different from the latter (Figs. 12–13); (3) the cymbium without apophysis, the latter with a digitiform apophysis (Figs. 12–13); (4) the connecting ducts long, while shorter in the latter (Fig. 15).

Etymology: The specific name refers to membranous conductor.

Description: Male. Body length 2.35–2.42. Holotype: body length 2.42; prosoma length 1.02, width 0.71, height 0.71; opisthosoma length 1.43, width 1.02.

Color. Carapace (Fig. 11) dark brown. Cervical grooves and radial furrows black. Eyes with black ring. Clypeus, chelicerae, endites, sternum and labium dark brown. Legs brown, coxae, femora and metatarsi darker than other parts of legs. Opisthosoma dorsally dark brown and covered with some small annular dark brown patches surrounding each seta; venter dark brown. Spinnerets dark brown.

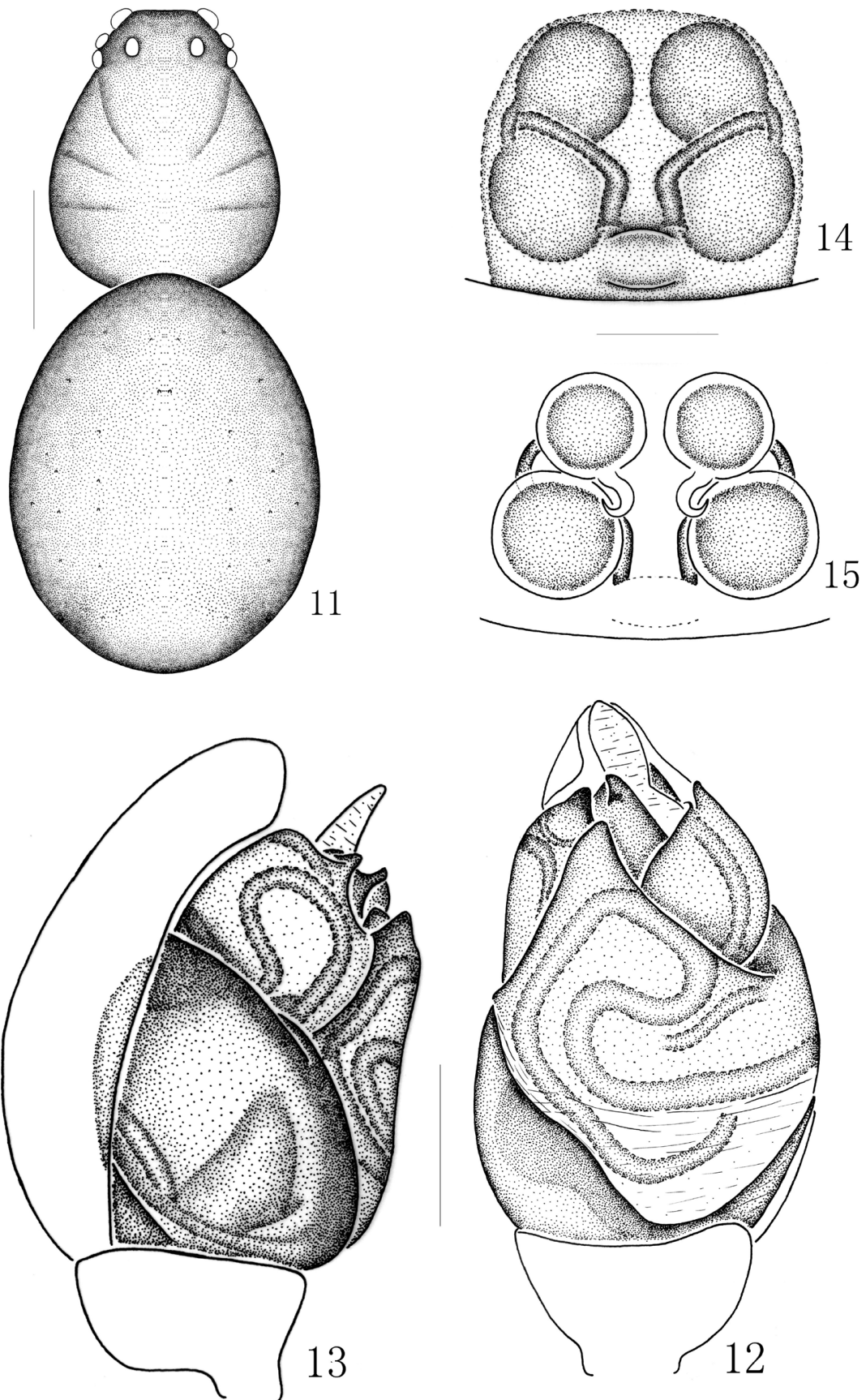
Prosoma (Fig. 11). Carapace longer than wide, highest centrally; head protruding forward and beyond clypeus, with several long gray setae anteriorly. Both the eye rows recurved in dorsal view. Eye measurements: AME 0.13, ALE 0.05, PME 0.08, PLE 0.05; AME-AME 0.13, AME-ALE 0.03, ALE-ALE 0.43, PME-PME 0.08, PME-PLP 0.10, PLE-PLP 0.45, ALE and PLE contiguous. MOA length 0.15, front width 0.33, back width 0.23. Clypeus height 0.51 and covered with few black setae. Front face of chelicerae with a thick black spine pointing to prolateral part. Labium length 0.08, width 0.15. Sternum length 0.53, width 0.40, and covered with sparse gray setae.

Legs. Thin, with sparse thin setae and spines. Measurements of legs: leg I 2.14 (0.71, 0.20, 0.51, 0.41, 0.31), II 1.84 (0.61, 0.20, 0.31, 0.41, 0.31), III 1.74 (0.51, 0.20, 0.31, 0.41, 0.31), IV 2.15 (0.72, 0.20, 0.41, 0.51, 0.31). Leg formula: 4123.

Opisthosoma (Fig. 11) oval, longer than wide, and covered with sparse brown setae.

Male palp (Figs. 12–13). Tegular apophysis large with thin tip; embolus short, thinner apically; conductor membranous; median apophysis with a small process.

Female. A paratype (from Bawangling Mountain): body



Figs. 11–15. *Diploena membranula* sp. nov. 11–13, male holotype. 11, body, dorsal view; 12, male left palp, ventral view; 13, same, prolateral view. 14–15, female paratype. 14, epigyne, ventral view; 15, vulva, dorsal view. Scale bars: 11, 0.5 mm; 12–15, 0.1 mm.

length 1.84; prosoma length 0.72, width 0.63, height 0.50; opisthosoma length 1.17, width 0.95.

Color. Characters as in holotype.

Prosoma. Both the eye rows recurved in dorsal view. Eye measurements: AME 0.10, ALE 0.09, PME 0.09, PLE 0.09; AME-AME 0.08, AME-ALE 0.01, ALE-ALE 0.47, PME-PME 0.08, PME-PLP 0.10, PLE-PLP 0.49, ALE and PLE contiguous. MOA length 0.25, front width 0.31, back width 0.25. Clypeus height 0.27. Labium length 0.09, width 0.14. Sternum length 0.50, width 0.32.

Legs. Measurements of legs: leg I 1.99 (0.68, 0.27, 0.45, 0.36, 0.23), II 1.96 (0.63, 0.27, 0.45, 0.41, 0.20), III 1.64 (0.54, 0.18, 0.36, 0.36, 0.20), IV 2.05 (0.68, 0.27, 0.45, 0.45, 0.20). Leg formula: 4123.

Female genitalia (Figs. 14–15). Epigynum with an epigynal atrium, genital openings at the anterior margin of atrium; connecting ducts long and bent, connected with the

anterior of ventral spermathecae.

Distribution: China (Hainan).

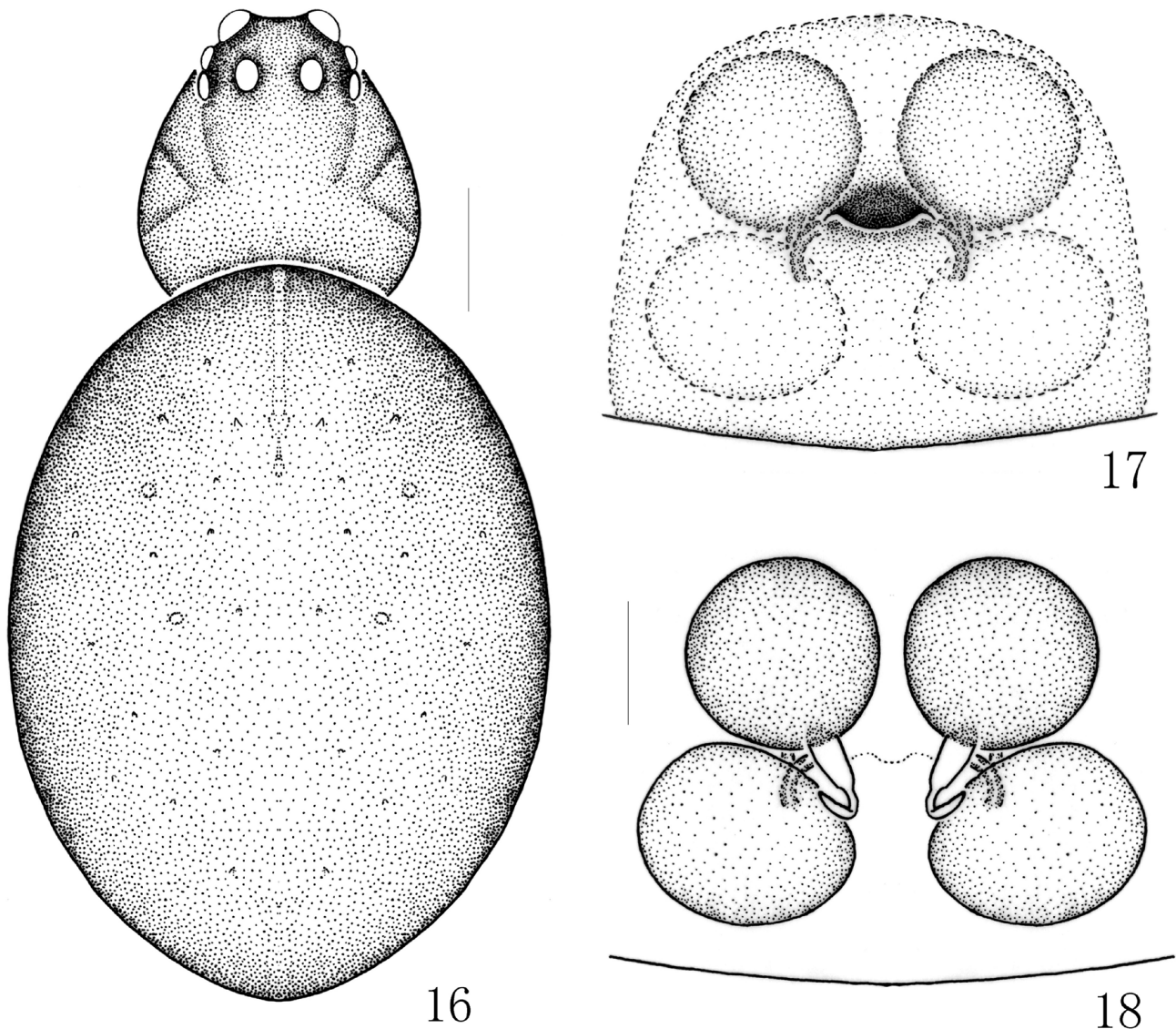
***Dipoena shortiducta* sp. nov.**

(Figs. 16–18)

Type material: Holotype female, Hainan Island, Diaoluo Mountain (18°45'N, 109°45'E), 7 June 2009, C. Zhang leg.

Diagnosis: This new species resembles *D. submustelina* Zhu, 1998 in the general shapes of the epigynum, but differs from the latter by: (1) the anterior and the posterior spermathecae equal in diameter (Fig. 18), while the diameter of anterior spermatheca almost half of that of the posterior in the latter; (2) the connecting duct short (Fig. 18), while longer in the latter; and (3) the dorsal pattern of opisthosoma different from the latter (Fig. 16).

Etymology: The specific name refers to short connecting



Figs. 16–18. *Dipoena shortiducta* sp. nov. 16–18, female holotype. 16, body, dorsal view; 17, epigyne, ventral view; 18, vulva, dorsal view. Scale bars: 16, 0.5 mm; 17–18, 0.1 mm.

duct of the female.

Description: Holotype: body length 2.97; prosoma length 1.08, width 0.95, height 0.77; opisthosoma length 1.94, width 1.58.

Color. Carapace (Fig. 16) dark brown. Cervical grooves and radial furrows black. Eyes with black ring. Clypeus dark brown. Chelicerae, endites, labium and sternum dark brown, endites distally gray. Legs dark brown. Opisthosoma dorsally dark brown and with some small annular brown patches surrounding each seta, the anterior part with two pairs of brown muscle impressions and a thin brown stripe centrally; venter dark brown, with a yellowish irregular patch centrally. Spinnerets dark brown.

Prosoma (Fig. 16). Carapace with high head region, head protruding forward and beyond clypeus, with several long gray setae anteriorly, clypeus concaved below AME. Both the eye rows recurved in dorsal view. Eye measurements: AME 0.18, ALE 0.13, PME 0.13, PLE 0.13; AME-AME 0.12, AME-ALE 0.01, ALE-ALE 0.53, PME-PME 0.08, PME-PLE 0.13, PLE-PLE 0.54, ALE and PLE contiguous. MOA length 0.31, front width 0.42, back width 0.26. Clypeus height 0.36 and covered with few black setae.

Chelicerae with dense black setae, distally with thick black scopula. Endites with gray scopula. Labium 0.14 long, 0.18 wide. Sternum length 0.86, width 0.59, and covered with sparse black setae.

Legs. Thin, with sparse thin setae and spines. Measurements of legs: leg I 4.10 (1.35, 0.45, 0.90, 0.95, 0.45), II 3.38 (1.08, 0.36, 0.68, 0.81, 0.45), III 3.07 (0.99, 0.27, 0.59, 0.81, 0.41), IV 4.14 (1.35, 0.45, 0.90, 0.99, 0.45). Leg formula: 4123.

Opisthosoma (Fig. 16) oval, longer than wide, and covered with sparse long gray setae.

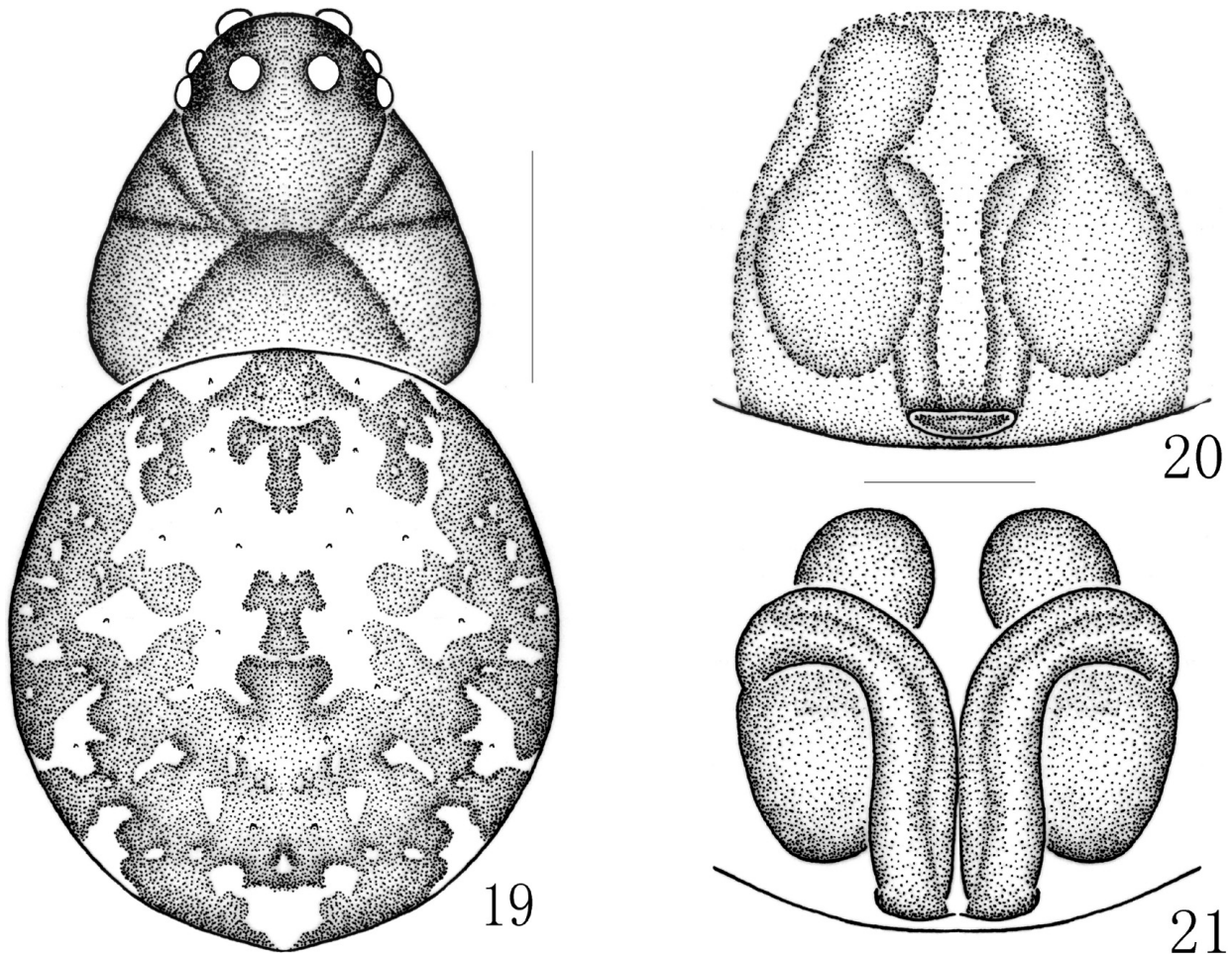
Female genitalia (Figs. 17–18). Epigynum with an atrium anteriorly, copulatory openings lying at the anterior margin of atrium; connecting ducts short, and bent slightly, connected with the anterior spermathecae ventrally.

Distribution: China (Hainan).

***Dipoena arborea* sp. nov.**

(Figs. 19–21)

Type material: Holotype female, Hainan Island, Bawangling Mountain (19°09'N, 109°10'E), 31 July 2007,



Figs. 19–21. *Dipoena arborea* sp. nov. 19–21, female holotype. 19, body, dorsal view; 20, epigyne, ventral view; 21, vulva, dorsal view. Scale bars: 19, 0.5 mm; 20–21, 0.1 mm.

F. Zhang leg.

Diagnosis: This new species resembles *D. adunca* Zhu, 1998 in the general shapes of the epigynum, but differs from the latter by: (1) epigynum with two copulatory openings (Fig. 20), while with only one copulatory opening in the latter; (2) the distance between the anterior spermathecae near (Fig. 21), while far from each other in the latter; and (3) the diameter of connecting ducts almost equal along the whole ducts (Fig. 21), while with different diameter in the latter.

Etymology: The specific name refers to pattern of the opisthosoma.

Description: Holotype body length 2.12; prosoma length 0.82, width 0.71, height 0.41; opisthosoma length 1.33, width 1.12.

Color. Carapace (Fig. 19) brown, black brown centrally. Cervical grooves and radial furrows black. Eyes with black ring. Clypeus brown. Chelicerae, endites and labium dark brown, endites gray distally. Sternum black brown. Legs brown, femora, patellae, tibiae and metatarsi with black patches. Opisthosoma dorsally yellow, with big continuous black patches, and anteriorly with small annular brown patches surround each seta; venter yellow, with a big black patch centrally. Spinnerets brown.

Prosoma (Fig. 19). Carapace with high head region, head protruding forward and beyond clypeus, with several long gray setae anteriorly. Both the eye rows recurved in dorsal view. Diameters of eyes: AME 0.13, ALE 0.05, PME 0.10, PLE 0.08. Eye measurements: AME-AME 0.08, AME-ALE 0.03, ALE-ALE 0.35, PME-PME 0.05, PME-PLE 0.08, PLE-PLE 0.38, ALE and PLE contiguous. MOA long 0.23, front width 0.25, back width 0.22. Clypeus height 0.27 and covered with few black setae. Fangs of chelicerae thin and long. Endites with black scopula. Labium length 0.05, width 0.09. Sternum length 0.45, width 0.45, and covered with sparse black setae.

Legs. Thin, with sparse thin setae and spines. Measurements of legs: leg I 2.36 (0.82, 0.31, 0.41, 0.41, 0.41), II 2.05 (0.61, 0.31, 0.41, 0.31, 0.41), III 1.74 (0.51, 0.20, 0.31, 0.31, 0.41), IV 2.37 (0.82, 0.32, 0.51, 0.31,

0.41). Leg formula: 4123.

Opisthosoma (Fig. 19) almost oval, and covered with sparse long gray setae.

Female genitalia (Figs. 20–21). Epigynum with a small atrium posteriorly, copulatory openings laterally; connecting ducts wide and bent, connected with the anterior spermathecae ventrally.

Distribution: China (Hainan).

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